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An invited talk

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Abnormal dynamics of metallic glass-forming liquids

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We present some recent findings about abnormal dynamic behaviour of metallic glass-forming liquids (MGFLs), i.e., the fragile-to-strong (F-S) transition. This behaviour is observed not only on the marginal metallic glasses, but also on the bulk metallic glasses. We have proposed a model for the F-S transition that accurately captures the scaling of dynamics across both the fragile and strong regimes. In addition, we demonstrate that the F-S transition is likely associated with a thermodynamic transition, namely, a drastic endothermic change in the isobaric heat capacity over the temperature region of F-S transition. We also discuss the structural origin of the F-S transition. Finally, we illustrate a possible link between the extent of the F-S transition and the glass forming ability.